

PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: Q77446

Sang-Yup LEE, et al.

Appln. No.: Not Assigned

Confirmation No.: Not Assigned

Group Art Unit: Not Assigned

Filed: September 16, 2003

Examiner: Not Assigned

For: PROCESS FOR PREPARING POLYHYDROXYALKANOATE EMPLOYING MAOC
GENE

**INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §§ 1.97 and 1.98**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure under 37 C.F.R. § 1.56, Applicant hereby
notifies the U.S. Patent and Trademark Office of the documents which are listed on the attached
PTO/SB/08 A & B (modified) form and/or listed herein and which the Examiner may deem
material to patentability of the claims of the above-identified application.

U.S. Patent No. 6,143,952, issued November 7, 2000;

World Patent No. 01/55436 A1, published August 2, 2001;

World Patent No. 98/54329, published December 3, 1998;

World Patent No. 99/61624, published December 2, 1999;

Fukui *et al.*, "Expression and Characterization of (R)-Specific Enoyl Coenzyme A
Hydratase Involved in Polyhydroxyalkanoate Biosynthesis by *Aeromonas caviae*," Journal of
Bacteriology, Vol. 180, No. 3, (February 1998), pp. 667-673;

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Tsuge *et al.*, "Molecular cloning of two (R)-specific enoyl-CoA hydratase genes from *Pseudomonas aeruginosa* and their use for polyhydroxyalkanoate synthesis," FEMS Microbiology Letters 184, (1999), pp. 193-198;

Taguchi *et al.*, "Co-expression of 3-ketoacyl-ACP reductase and polyhydroxyalkanoate synthase genes induced PHA production in *Escherichia coli* HB101 strain," FEMS Microbiology Letters 176, (1999), pp. 183-190;

Ren *et al.*, "FabG, an NADPH-Dependent 3-Ketoacyl Reductase of *Pseudomonas aeruginosa*, Provides Precursors for Medium-Chain-Length Poly-3-Hydroxyalkanoate Biosynthesis in *Escherichia coli*," Journal of Bacteriology, Vol. 182, No. 10, (May 2000), pp. 2978-2981;

Park *et al.*, "Metabolic engineering of *Escherichia coli* for the production of medium-chain-length polyhydroxyalkanoates rich in specific monomers," FEMS Microbiology Letters 214, (2002), pp. 217-222;

Qi *et al.*, "Synthesis of poly(3-hydroxyalkanoates) in *Escherichia coli* expressing the PHA synthase gene *phaC2* from *Pseudomonas aeruginosa*: comparison of PhaC1 and PhaC2," FEMS Microbiology Letters 157, (1997), pp. 155-162;

Qi *et al.*, "Metabolic routing towards polyhydroxyalkanoic acid synthesis in recombinant *Escherichia coli* (*fadR*): inhibition of fatty acid β -oxidation by acrylic acid," FEMS Microbiology Letters 167, (1998), pp. 89-94;

Langenbach *et al.*, "Functional expression of the PHA synthase gene *phaC1* from *Pseudomonas aeruginosa* in *Escherichia coli* results in poly(3-hydroxyalkanoate) synthesis," FEMS Microbiology Letters 150, (1997), pp. 303-309;

Snell *et al.*, "YfcX Enables Medium-Chain-Length Poly(3-Hydroxyalkanoate) Formation from Fatty Acids in Recombinant *Escherichia coli* *fadB* Strains," Journal of Bacteriology, October 2002, pp. 5696-5705;

Steinebach *et al.*, "Cloning of the *maoA* gene that encodes aromatic amine oxidase of *Escherichia coli* W3350 and characterization of the overexpressed enzyme," Eur. J. Biochem., Vol. 237, (1996), pp. 584-591.

Blattner *et al.*, "The Complete Genome Sequence of *Escherichia coli* K-12," Science, Vol. 277, (September 5, 1997), pp. 1453-1462;

Jeong *et al.*, "Excretion of Human β -Endorphin into Culture Medium by Using Outer Membrane Protein F as a Fusion Partner in Recombinant *Escherichia coli*," Applied and Environmental Microbiology, (Vol. 68, No. 10, (October 2002), pp. 4979-4985;

Park *et al.*, "Enrichment of specific monomer in medium-chain-length poly(3-hydroxyalkanoates) by amplification of *fadD* and *fadE* genes in recombinant *Escherichia coli*," Enzyme and Microbial Technology, Vol. 33, (2003), pp. 62-70;

INFORMATION DISCLOSURE STATEMENT
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Matsusaki *et al.*, "Cloning and Molecular Analysis of the Poly(3-hydroxybutyrate) and Poly(3-hydroxybutyrate-*co*-3-hydroxyalkanoate) Biosynthesis Genes in *Pseudomonas* sp. Strain 61-3," Journal of Bacteriology, Vol. 180, No. 24, (December 1998), pp. 6459-6467;

Peekhaus *et al.*, "Positive and Negative Transcriptional Regulation of the *Escherichia coli* Gluconate Regulon Gene *gntT* by GntR and the Cyclic AMP (cAMP)-cAMP Receptor Protein Complex," Journal of Bacteriology, Vol. 180, No. 7, (April 1998), pp. 1777-1785;

Sambrook *et al.*, "Molecular Cloning, Second Edition, A Laboratory Manual," Cold Spring Harbor Laboratory, (1989), pp. xi-xxxv; and

Kovach *et al.*, "Four new derivatives of the broad-host-range cloning vector pBBR1 MCS, carrying different antibiotic-resistance cassettes," Gene, Vol. 166, (1995), pp. 175-176.

One copy of each of the listed documents is submitted herewith.

The present Information Disclosure Statement is being filed: (1) No later than three months from the application's filing date for an application other than a continued prosecution application (CPA) under §1.53(d); (2) Before the mailing date of the first Office Action on the merits (whichever is later); or (3) Before the mailing date of the first Office Action after filing a request for continued examination (RCE) under §1.114, and therefore, no Statement under 37 C.F.R. § 1.97(e) or fee under 37 C.F.R. § 1.17(p) is required.

The submission of the listed documents is not intended as an admission that any such document constitutes prior art against the claims of the present application. Applicant does not waive any right to take any action that would be appropriate to antedate or otherwise remove any listed document as a competent reference against the claims of the present application.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,


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WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: September 16, 2003

Substitute for Form 1449 A & B/PTO						<i>Complete if Known</i>	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT						Application Number	Not Assigned
<i>(use as many sheets as necessary)</i>						Confirmation Number	Not Assigned
						Filing Date	September 16, 2003
						First Named Inventor	Sang-Yup LEE
						Art Unit	Not Assigned
						Examiner Name	Not Assigned
Sheet		1	of	2	Attorney Docket Number		
					Q77446		

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	
		Number	Kind Code ² (if known)			
		US 6,143,952		11/07/2000	Srienc et al.	

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Translation ⁶
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		WO	01/55436	A1	08/02/2001	Green	
		WO	98/54329		12/03/1998	Wiholt et al.	
		WO	99/61624		12/02/1999	Skraly et al.	

NON PATENT LITERATURE DOCUMENTS							
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city, and/or country where published.					Translation ⁶
		Fukui et al., "Expression and Characterization of (R)-Specific Enoyl Coenzyme A Hydratase Involved in Polyhydroxyalkanoate Biosynthesis by <i>Aeromonas caviae</i> ," <i>Journal of Bacteriology</i> , Vol. 180, No. 3, (February 1998), pp. 667-673					
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Examiner Signature		Date Considered
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				First Named Inventor	Sang-Yup LEE
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				Examiner Name	Not Assigned
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U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
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	US				

FOREIGN PATENT DOCUMENTS							
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NON PATENT LITERATURE DOCUMENTS							
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		Snell <i>et al.</i> , "YfcX Enables Medium-Chain-Length Poly(3-Hydroxyalkanoate) Formation from Fatty Acids in Recombinant <i>Escherichia coli fadB</i> Strains," <i>Journal of Bacteriology</i> , October 2002, pp. 5696-5705					
		Steinebach <i>et al.</i> , "Cloning of the <i>maoA</i> gene that encodes aromatic amine oxidase of <i>Escherichia coli</i> W3350 and characterization of the overexpressed enzyme," <i>Eur. J. Biochem.</i> , Vol. 237, (1996), pp. 584-591					
		Blattner <i>et al.</i> , "The Complete Genome Sequence of <i>Escherichia coli</i> K-12," <i>Science</i> , Vol. 277, (September 5, 1997), pp. 1453-1462					
		Jeong <i>et al.</i> , "Excretion of Human β -Endorphin into Culture Medium by Using Outer Membrane Protein F as a Fusion Partner in Recombinant <i>Escherichia coli</i> ," <i>Applied and Environmental Microbiology</i> , (Vol. 68, No. 10, (October 2002), pp. 4979-4985					
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